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TITLE : NI-BASE SUPERALLOY, AND NI-BASE SUPERALLOY PARTS

ABSTRACT : PROBLEM TO BE SOLVED: To obtain an Ni-base superalloy excellent in high temp. corrosion resistance and having high temp. strength equal to that of the existing Ni-base single-crystal alloy at a lower cost by specifying a composition consisting of Cr, Al, Ti, W, Ta, Mo, Co, Ru, C, and Ni.

SOLUTION: This superalloy is an Ni-base superalloy which has a composition consisting of, by weight, 10-14%, preferably 11-13%, of Cr, 3-7% Al, 0-5% Ti, 4-6% W, 2-8%, preferably 3-7%, of Ta, 1-3% Mo, 7-12%, preferably 8-10%, of Co, 0.5-4%, preferably 0.5-3%, of Ru, ≤0.2% (not including 0%) of C, and the balance Ni with inevitable contaminants and further containing, if necessary, 0.1-1% Hf, 0.1-3% Re, and 0.01-1% Y and containing S in an amount limited, preferably, to ≤10 ppm. If necessary, solid solution forming temp. is raised to precipitate the γ-phase as precipitation strengthening phase in the γ-phase by 60% by volume percentage. This superalloy can be suitably used for a material for gas turbine engine parts such as turbine blade.

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